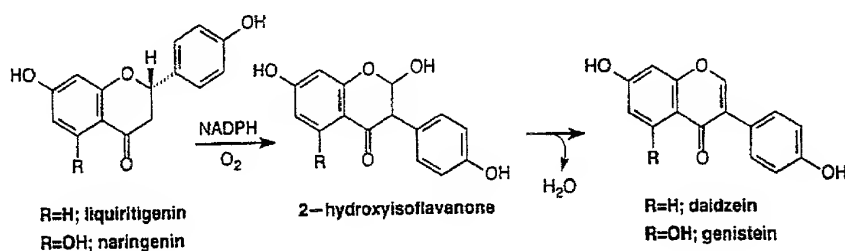




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(71) Applicant (for all designated States except US): THE SAMUEL ROBERTS NOBLE FOUNDATION, INC. [US/US]; 2510 Sam Noble Parkway, Ardmore, OK 73401 (US).			
(72) Inventors; and (75) Inventors/Applicants (for US only): STEELE, Christopher, L. [US/US]; 617 Campbell, Ardmore, OK 73401 (US). DIXON, Richard, A. [GB/US]; 206 Woods Lane, Ardmore, OK 73401 (US).		Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.	
(74) Agents: HANSEN, Eugenia, S. et al.; Sidley & Austin, Suite 3400, 717 N. Harwood, Dallas, TX 75201-6570 (US).			

(54) Title: GENETIC MANIPULATION OF ISOFLAVONOIDS



## (57) Abstract

Soybean and *Medicago truncatula* CYP93C genes have been isolated which encode a cytochrome P450 that can catalyze the aryl migration of a flavanone to yield an isoflavanone intermediate or an isoflavone. Plants can now be genetically engineered to produce isoflavones that provide potential human health benefits and increase disease resistance in plants. Isoflavones can now be produced in transgenic plants species in which isoflavones do not naturally occur, i.e., in species other than legumes. Alternatively, introducing infection-inducible isoflavonoid biosynthesis into non-legumes qualitatively complements these plants' phytoalexin defenses against microbial pathogens, whereas over-expression of the isoflavonoid pathway in legumes quantitatively increases this defense response. Finally, modifying the extend of production of isoflavonoids in legume roots positively impacts nodulation efficiency and therefore plant yield.